1510(F) Surface Vertical Rod Exit Devices
Installation Instructions

Attention Installer

Any retrofit or other field modification to a fire rated opening can potentially impact the fire rating of the opening, and Yale Locks & Hardware makes no representations or warranties concerning what such impact may be in any specific situation. When retrofitting any portion of an existing fire rated opening, or specifying and installing a new fire-rated opening, please consult with a code specialist or local code official (Authority Having Jurisdiction) to ensure compliance with all applicable codes and ratings.

PPHMS
PHILLIPS PAN HEAD MACHINE SCREW

PFHUMS
PHILLIPS FLAT HEAD MACHINE SCREW

PRH"AB"SMS
PHILLIPS ROUND HEAD TYPE "AB" SHEET METAL SCREW

PHILLIPS TRUSS HEAD TYPE "AB" SHEET METAL SCREW

PHILLIPS PAN HEAD MACHINE SCREW

PHILLIPS FLAT HEAD TYPE "AB" SHEET METAL SCREW

Lift for 620F or 630F Series Trim supplied when outside trim is packed with the device.

Dogging

Feature to hold bolts retracted and crossbar depressed, for push-pull door operation.

To Dog Device

Set Rod Case Retractor and Hinge Case Retractor, as follows:

1. Hold crossbar depressed.
2. Insert dogging key.
3. Turn key 1/4 turn clockwise.

(Not a feature of fire labeled devices.)

ABBREVIATION
PPH"AB"SMS
PFHUMS
PRH"AB"SMS
PTH"AB"SMS
PFHMS
PPHMS
PFH"AB"SMS

FASTENER DESCRIPTION
PHILLIPS PAN HEAD TYPE "AB" SHEET METAL SCREW
PHILLIPS FLAT HEAD UNDER CUT MACHINE SCREW
PHILLIPS FLAT HEAD MACHINE SCREW
PHILLIPS TRUSS HEAD TYPE "AB" SHEET METAL SCREW
PHILLIPS FLAT HEAD MACHINE SCREW
PHILLIPS PAN HEAD MACHINE SCREW
PHILLIPS FLAT HEAD TYPE "AB" SHEET METAL SCREW

All dimensions are in inches (mm) unless otherwise noted.
## To Change Hands

**RHR Device**
Complete device required to change hands. Arms are swapped between latch and hinge cases. Only essential components shown or highlighted, for clarity.

**LHR Device**

### Maintenance

1. Periodically remove covers and coat mechanisms with a silicone base lubricant. This is particularly required in corrosive environments for proper product function.

2. Check mounting fasteners periodically. Retighten if found loose. Apply screw locking compound (available at automotive part stores) or change part fasteners if screws continue to back out.

3. Periodic checks (and adjustments) of strikes are required to compensate for changes in the opening (e.g. door sagging).

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### Check Before Starting

#### Unreinforced Doors or Frames
Doors and Frames with walls having a structural thickness (metal skin plus reinforcement or solid hardwood) to engage less than (3) full screw threads are considered unreinforced.

Unreinforced Doors: Use SNB (sex nuts and bolts).

Unreinforced Frames: Use Blind Rivet Nuts.

Recommended fasteners for unreinforced openings are not necessarily supplied by Yale Locks and Hardware.

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#### 1. Mark Door

**Single Door or Pair without Mullion**

Locate and Mark Horizontal and Vertical Reference Centerlines as shown.

LHR door shown. Preparation is typical for both door hands.

Caution: If device is mounted higher or lower than shown, rod length must change. Lengthen or cut top and bottom rods as shown on Step 5.
2. Prepare Door, Frame & Sill

A. Locate "Device Template" aligning VERTICAL REFERENCE and HORIZONTAL REFERENCE lines on door and template. Tape template to door face.
B. Extend centerline of Rods and Strikes from "Device Template" to door top and bottom, on door face.
D. Locate and tape Trim Template to door. (See instructions packed with Trim)
E. Spot and prepare holes:
   - Rod Case: Cutout for trim (not for exit only), plus
     - (4) 1/4-20 Machine Screws*, or 3/8 (9.50) Dia. Sex Nuts
   - Bolt Case Plates: (2) ea. 1/4-20 Machine Screws*, or
     - 3/8 (9.50) Dia. Sex Nuts
   - Top Strike: (2) 10-24 Machine Screws, or (2) #10 Wood Screws
   - Bottom Strike: 5/8 (16) dia. x 3/4 deep hole.

3. Prepare Device For Trim

If outside trim is not used, go to step 4. Drawing shows only essential parts, for clarity.

The Lifter Assembly is nested in the Device Case.

The boss of the lifter moving plate penetrates the round hole above the case slider center.

The Device Case seats over the door face, with the Lifter Assembly projecting thru the door cutout surface and into the door cavity.

4. Prepare Crossbar

Crossbar length \( L = \text{Door Opening Width} - 6-1/4" (159\text{mm}) \)
A. Cut bar to required length (Detail "A").
B. Locate and drill hole (Detail "B").
C. Assemble crossbar (Detail "C").
5. Mount Components

Mount 791 Top Strike
(See Top Strike Detail, at right)

Mount Top Latch
(See Detail, at right)

Mount Rod Guide
(See Rod Guide Detail, below)

Mount Device (Follow letter sequence)

1. Mount Hinge Case
   Use Chassis as template.
   Prepare (4) holes for 1/4-20
   screws, or 3/8" (9.5) Sex Nuts.
   Chassis: 4 Round Head Screws
   Cover: 4 Flat Head Screws

2. Mount Center Case
   Chassis: 4 Round Head Screws
   Cover: 4 Flat Head Screws

3. Assembly has to be level
   to set Hinge Case in position.

4. Install Crossbar to Set Hinge Case
   Crossbar into Arm grooves,
   bolted with Flat Head Cap
   Screws (3/16 Hex Key).

5. Reinstall Crossbar

Device, Rods & Strikes

Rod Guide
(See Rod Guide Detail, at right)

Bottom Bolt Case Detail

Mount Bottom Bolt Case
(See Detail, at right)

Note that fire openings with thresholds
require optional 794 Strikes, anchored
to floor under thresholds.
6. Prepare Rods

**Top Rod**

**Ready for 84 (2134) Openings**

- **Openings Under 84 (2134)**
  - For Top Rod cutoff length, deduct OPENING HEIGHT from 84 (2134).
  - **Example:**
    - Opening = 80 (2032)
    - $84 - 80 = 4$ or $(2134) - (2032) = (102)$
    - Top Rod must be cut 4 (102).

- **Openings Over 84 (2134)**
  - For Top Rod additional length, deduct 84 (2134) from OPENING HEIGHT.
  - **Example:**
    - Opening = 99 (2515)
    - $99 - 84 = 15$ or $(2515) - (2134) = (381)$
    - Top Rod must be lengthened 15 (381).

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### To Lengthen Rods

- Use Rod Extension(s) to extend Rod to length needed or longer (2", 6", or 12" Rod Extensions available).
- Cut excess length from end of rod with pin hole.
- Apply screw locking compound* to Rod Extension(s) male threads. Thread Extension(s) until seated tight over Rod.

*Available at automotive parts store.

### To Cut Rods

- Cut from end with pin hole. NEVER CUT THREADED END.
- Press Jig till it bottoms over Rod.
- Drill $1/8$ (3.20) Dia. hole thru, 3/8 (10) from end of Rod.

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**Bottom Rod**

**Ready for 39-15/16 (1014)**

**Floor to Device Center**

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### To Lower Device

**A.** Bottom Rod cutoff length is distance that device was lowered below 39-15/16 (1014).

**B.** Add to Top Rod a length equal to the Bottom Rod cut.

**Example:**

- Device at 36 (914) from floor.
  - $39-15/16 - 36 = 3-15/16$ or $(1014) - (914) = (100)$
  - The Bottom Rod must be cut 3-15/16 (100).
  - The Top Rod must be lengthened 3-15/16 (100).

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7. Complete Installation

A. Check Device Slide Action
Slide should move up, at least 9/16 (14). Depress Bar, activate Trim, dog Device. With any of these actions the Slide should move up. The Slide must return to original position when Bar, Trim or Dogging actions ends.

Note: If action is faulty, check for visible binding or interference. If no reason for fault is seen, remove from door and check operation before assuming it is defective.

B. Install Rods, as shown
Top Rod rests over Device Slide. Bottom Rod Connector hangs from Device Slide.

C. Set Top Strike Roller between Tripping Lever and Bolt.
DO NOT PRELOAD BOLT.
Adjust and shim Strike as needed for zero door rattle.

D. Test Device action by Touchbar, by Trim, by Dogging.
ADJUST AS NEEDED.
See D1, Bottom Rod Adjustment, and D2, Top Rod Adjustment, below.
Both bolts should retract, permitting free door swing.
Upper Bolt should retract flat.
Bottom Bolt should retract 1/2 (13).
Bolts remain retracted until door shuts and Top Strike hits Tripping Lever.

D1. Top Rod Adjustment

TILT ROD OUT & TURN

SHORTER
TOP ROD
LONGER

Note: When top bolt does not remain retracted, Top Rod is too short.

FOR ADJUSTMENT, RODS MUST BE DISENGAGED FROM ROD GUIDES.

D2. Bottom Rod Adjustment

TILT ROD OUT & TURN

SHORTER
BOTTOM ROD
LONGER

Note: When Bottom Rod drags on floor but Top Rod remains retracted, bottom rod is too long.

E. After acceptable Device function, install third screw in top Strike to lock
Strike in position: 10-24 x 3/4" FHMS.

F. Secure Covers.
Device Covers (4 Flat Head Screws each).
Bolt Case Covers (2 Flat Head Screws each).
CAUTION:
Office copiers, printers and facsimile machines may change the size of a drawing and make the template inaccurate to use as a door marker.
Notes:
1. Rectangular slot for Trim Lifter is not required for exit only openings.
2. Mark centerline of rods on door face.
3. Unreinforced frames require that 10-24 blind rivet nuts (by others) be used to bolt strike. Frames are considered not reinforced when strike mounting screws cannot engage (3) full threads.
4. Dimensions are given in inches (mm).
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Table:

<table>
<thead>
<tr>
<th>DOOR/FRAME</th>
<th>FASTNER</th>
<th>PREPARATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metal Reinforced</td>
<td>1/4-20 PRHMS</td>
<td>Drill: #7 (.201&quot; dia.) Tap: 1/4-20</td>
</tr>
<tr>
<td>All Others</td>
<td>1/4-20 SNB</td>
<td>3/8&quot; (9.50mm) dia. thru door</td>
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</tbody>
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